

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 April 2005 (21.04.2005)

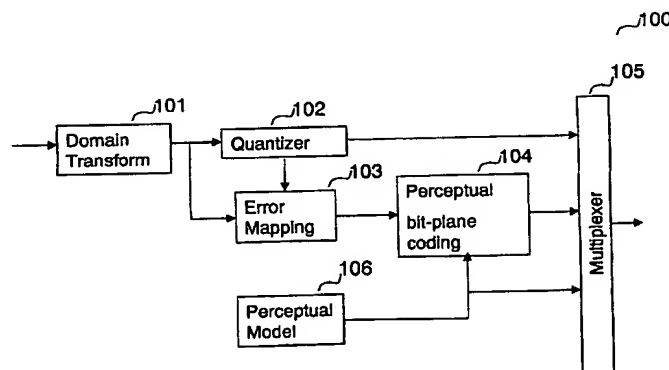
PCT

(10) International Publication Number
WO 2005/036528 A1

- (51) International Patent Classification⁷: **G10L 19/00**, 21/00
- (21) International Application Number: **PCT/SG2004/000323**
- (22) International Filing Date: 6 October 2004 (06.10.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/510,629 10 October 2003 (10.10.2003) US
- (71) Applicant (for all designated States except US): **AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH** [SG/SG]; 20 Biopolis Way, #07-01 Centros, Singapore 138668 (SG).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **YU, Rongshan** [CN/SG]; Blk 168 Boon Lay Drive, #07-621, Singapore 640168 (SG). **LIN, Xiao** [SG/SG]; Blk 117 Bukit Batok West Ave 6, #18-238, Singapore 650117 (SG). **RA-HARDJA, Susanto** [ID/SG]; 10A Braddell Hill, #22-02, Singapore_579720 (SG).
- (74) Agent: **VIERING JENTSCHURA & PARTNER**; P.O. Box 1088, Rochor Post Office, Rochor Road, Singapore 911833 (SG).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report

[Continued on next page]

(54) Title: METHOD FOR ENCODING A DIGITAL SIGNAL INTO A SCALABLE BITSTREAM; METHOD FOR DECODING A SCALABLE BITSTREAM.



(57) Abstract: A method for encoding a digital signal into a scalable bitstream comprising quantizing the digital signal, and encoding the quantized signal to form a core-layer bitstream, performing an error mapping based on the digital signal and the core-layer bitstream to remove information that has been encoded into the core-layer bitstream, resulting in an error signal, bit-plane coding the error signal based on perceptual information of the digital signal, resulting in an enhancement-layer bitstream, wherein the perceptual information of the digital signal is determined using a perceptual model, and multiplexing the core-layer bitstream and the enhancement-layer bitstream, thereby generating the scalable bitstream. A method for decoding a scalable bitstream into a digital signal comprising de-multiplexing the scalable bitstream into a core-layer bitstream and an enhancement-layer bitstream, decoding and de-quantizing the core-layer bitstream to generate a core-layer signal, bit-plane decoding the enhancement-layer bitstream based on perceptual information of the digital signal, and performing an error mapping based on the bit-plane decoded enhancement-layer bitstream and the de-quantized core-layer signal, resulting in a reconstructed transformed signal, wherein the reconstructed transformed signal is the digital signal.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.